



June 18, 1999
JUN 21 10 12 AM '99

Mr. Paul Dandrade
Cumberland Farms Inc.
777 Dedham Street
Canton, Massachusetts 02021-9118

RE: Cumberland Farms Inc., Station # 4018 (VDEC Site# 98-2418), 661 Pine Street,
Burlington, VT - Subsurface Contaminant Investigation Report

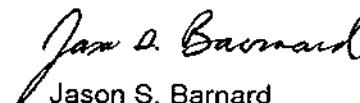
Dear Mr. Dandrade:

Lincoln Applied Geology, Inc. (LAG) is pleased to present this Subsurface Investigation Report (SIR) for Cumberland Farms Inc. (CFI) Station # 4018 (VDEC Site # 98-2418) located at 661 Pine Street in Burlington, Vermont. In response to the discovery of gasoline contaminated soils and ground water during the replacement of the Underground Storage Tank (UST) system piping, the Vermont Department of Environmental Conservation (VDEC) Sites Management Section (SMS) requested that a subsurface contaminant investigation be performed to determine the extent and magnitude of the petroleum contamination beneath the site. The requested contaminant investigation was performed by LAG between April 19 and May 7, 1999, and the SIR is attached. It includes well logs, monitoring data, ground water quality results, observations made during the sensitive receptor survey, and our conclusions and recommendations for the site.

Results of the investigation show that soil and ground water beneath the site has been impacted by low levels of petroleum contamination which was previously detected during the UST system piping assessment. Other than soil and ground water beneath the site, no contaminant impacts were detected in the CFI building ambient air space. Based on data collected during the subsurface investigation, we do not recommend that additional ground water monitor wells be installed at this time. However, we do recommend performing semiannual site monitoring and ground water sampling of the four on-site wells. This recommended sampling frequency will define the status of the limited contamination and enable us to determine the rate at which intrinsic bioremediation and natural attenuation processes are occurring beneath the site.

Please do not hesitate to call me or Richard S. Vandenberg, Project Manager, at (800) 477-4384, if you have any questions or comments regarding the attached report.

Sincerely,
Lincoln Applied Geology, Inc.


Jason S. Barnard
Geologist

JSB/jb
enclosures

cc: Chuck Schwer

Subsurface Investigation Report
Cumberland Farms Inc., Station # 4018
661 Pine Street, Burlington, Vermont
(VDEC Site #98-2418)

Prepared for:

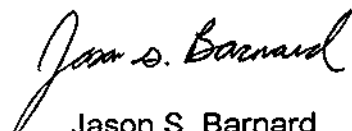
Cumberland Farms Inc.
777 Dedham Street
Canton, Massachusetts 02021-9118
Contact: Paul Dandrade
Phone: (781) 828-4900 ext. 3416

Prepared by:


Lincoln Applied Geology, Inc.
163 Revell Drive
Lincoln, Vermont 05443
Contact: Jason S. Barnard
Phone: (802) 453-4384

June 18, 1999

Prepared by:


Jason S. Barnard
Geologist

Reviewed and Approved by:


Stephen Revell, CPG
Senior Hydrogeologist



Lincoln Applied Geology, Inc.
Environmental Consultants

163 Revell Road • Lincoln, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

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Executive Summary

In April 1998, CFI and their subcontractors completed the removal, closure, and replacement of the underground storage tank (UST) system piping at CFI facility #4018, which is located at 661 Pine Street in Burlington, Vermont. Lincoln Applied Geology Inc. (LAG) conducted the assessment work between April 21 and April 29, 1998 and completed the UST closure report, which was submitted to the Vermont Department of Environmental Conservation (VDEC), Underground Storage Tank Program (USTP) in May 1998. During the assessment, all UST distribution and ventilation piping was noted in good condition with no apparent holes. However, during the assessment ground water containing a petroleum sheen was encountered three feet below grade near the dispenser island area.

During piping removal and assessment activities, excavated soils were screened with a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). Approximately 40 cubic yards (yds³) of the most highly contaminated soils were removed (from the dispenser island area) and temporarily stockpiled on-site. Following VDEC approval, the gasoline contaminated soils were transported to the MTS Environmental, Inc. facility in Epsom New Hampshire where they were thermally treated. Based on the results of the April UST piping upgrade, the Sites Management Section (SMS) of the Vermont Department of Environmental Conservation (VDEC) requested that additional work be performed to further define the extent and magnitude of the soil and ground water contamination present beneath the site.

As a part of the requested additional work, LAG installed three monitor wells on-site on April 19, 1999 to define the extent and magnitude of the contamination remaining beneath the site. During the well installation an additional large diameter (8-inch) monitor well was discovered north of the UST area. Due to its location (downgradient), we elected to utilize this well and eliminate one of the originally proposed four borings. One well (MW-1) was installed upgradient, one well (MW-3) was installed downgradient, and one well (MW-4) was installed sidegradient of the UST and dispenser island areas. LAG also conducted a sensitive receptor survey by monitoring the ambient air space of the CFI building. Following installation, the wells were properly developed and sampled. A complete stadia survey was then performed on all monitor wells and pertinent site structures.

On May 7, 1999, LAG was on-site to measure static ground water levels, PID evaluate each monitor well headspace, and collect ground water samples from the three newly installed and one existing monitor wells. All samples were analyzed for the presence of volatile organic compounds (VOCs) by EPA 8021 and for total petroleum hydrocarbons (TPH) by EPA Method 8015.

Review of the May 7th water quality data shows that relatively low petroleum related VOCs and TPH concentrations were quantified above method detection limits in three out of the four wells sampled. Based on these findings and the lack of surrounding sensitive receptors, we do not recommend that additional ground water monitor wells be installed at this site. We do, however, recommend that site monitoring and ground water sampling of the four existing wells be performed on a semiannual basis. This sampling frequency will provide sufficient data to show contaminant concentration trends across the site.



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Site Description

Cumberland Farms, Inc. (CFI) facility #4018 is located at 661 Pine Street in Burlington, Vermont (Figure 1). The property is bound by Lakeside Avenue to the north, Pine Street to the east, and commercial properties to the south and west (Figure 2). CFI's one-story, slab on-grade building is served by municipal water and sewer. Figure 2 is a Detailed Site Map showing pertinent features of the site.

Site History

CFI and their subcontractors completed the excavation, removal, and replacement of all UST system distribution piping in April 1998. During the work, LAG provided oversight and assessment of the piping and soils. The UST Permanent Closure Form, photoionization detector (PID) data, and photographs of the site were submitted by LAG to the Vermont Department of Environmental Conservation (VDEC), Underground Storage Tank Program (USTP) in a report dated May 5, 1998. During the work, ground water containing a petroleum sheen was encountered 3 feet below grade in the vicinity of the dispenser island area. In order to quantify the contaminant levels present, a ground water sample was collected. The analytical results indicated that ground water in the vicinity of the dispenser island area contained elevated levels of dissolved phase petroleum related constituents.

During the work, excavated soils were screened for the presence of VOCs using a properly calibrated photoionization detector (PID) equipped with a 10.2 electron volt lamp. Data collected during the UST piping upgrade indicated that soils in the vicinity of the two product dispensers contained elevated concentrations of VOCs. To accommodate the new distribution piping and appropriate backfill material, the most highly contaminated soils were removed from the dispenser island area. Approximately 40 cubic yards (yds³) of the most highly contaminated soils were removed from the excavation and ultimately disposed of at MTS Environmental in Epsom, New Hampshire. Due to the presence of contamination remaining in soils and ground water in the vicinity of the dispenser island, the SMS requested that additional work be performed to further define the extent and magnitude of the contamination beneath the site.

Monitor Well Installation

Three monitor wells (MW-1, MW-3, and MW-4) were drilled and installed using hollow stem auger drilling techniques on April 19, 1999 by T & K Drilling. During the drilling an additional monitor well was discovered downgradient of the UST area. As a result of this discovery, only three of the originally proposed four wells were installed. The locations of the four monitor wells are shown on Figure 2. A description of the sediments encountered during the drilling, monitor well construction details, and PID data from the split-spoon samples, are presented in the detailed well logs which are included as Appendix A.

Site Geology

Soils encountered during drilling include a fine to coarse sand and gravel, overlying a more dense, less permeable silt and/or very fine to fine sand. This material represents typical lake bottom sediments deposited following the last ice age approximately 10,000-12,000 years ago.

Review of the Centennial Geologic Map of Vermont (C.G. Doll, 1961) indicates that the



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underlying bedrock is of the Monkton Quartzite formation (540 to 570 million years ago). The Monkton Quartzite formation consists of a red quartzite interbedded with white quartzite and thick sections of dolomite.

Site Survey and Monitoring

On April 19, 1999, LAG conducted a stadia survey of monitor wells MW-1, 2, 3, 4, and other site features pertinent to the subsurface investigation. On May 7th, LAG collected ground water level measurements from all monitor wells using an electronic interface probe capable of measuring 0.01 feet of free-floating petroleum product. LAG also assayed the headspace of each monitor well using a properly calibrated PID for the presence of petroleum related VOCs. Review of the collected data indicates that no free-floating petroleum product was present in any of the wells. The depth to ground water ranged between 3.04 feet (MW-4) and 5.15 feet (MW-2) across the site. A summary of ground water elevation data from May 7th is presented in Table 1, and PID assays are included in Table 2. Well headspace PID readings collected on May 7th were all at background (BG) levels. The collected data suggests that only a very limited amount of vadose zone contamination exists in the vicinity of the dispenser island area at the site.

Site Hydrogeology

Ground water elevation data from May 7th was used to develop a Ground Water Contour Map (Figure 3). Review of Figure 3 shows that ground water flows across the site in a northerly direction along a low to moderate gradient of 0.028 feet/foot.

Water Quality Sampling

On May 7, 1999, LAG collected water quality samples from monitor wells MW-1, 2, 3, and 4 using industry accepted methods. All samples were analyzed for the presence of VOCs via EPA Method 8021 and for total petroleum hydrocarbons (TPH) via EPA Method 8015 [gasoline range organics (GRO)] at Toxicon Laboratories Inc. in Bedford, Massachusetts.

The water quality results are summarized in Table 3 and are presented on the Water Quality Summary Map included as Figure 4. Copies of the laboratory reports are included as Appendix B. Review of Table 3, Figure 4, and Appendix B indicate that low concentrations of VOCs and TPH were present in three of the four wells sampled. The data shows that MW-3 and MW-4 contained total benzene, toluene, ethylbenzene, and xylene (BTEX) concentrations of 459 parts per billion (ppb) and 32.6 ppb, respectively. The sample collected from MW-2 contained 372 ppb of methyl-tert-butyl-ether (MTBE). The data also shows that no contaminant concentrations were present in MW-1 (most upgradient well) above method detection limits. Based on this water quality data, it is apparent that ground water beneath the site has been impacted by relatively low levels of petroleum related contamination.

Sensitive Receptor Survey

On April 19, 1999 LAG conducted a sensitive receptor survey of the site and surrounding properties. Potential sensitive receptors identified include only the indoor air of the CFI building. The CFI building and surrounding commercial buildings are all served by municipal water and sewer. Furthermore, indoor ambient air impacts to the CFI facility are highly unlikely because the building is constructed of a concrete slab on-grade. The collected data is summarized and

Did not do utility reviews as requested in letter



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presented in Table 2. The data indicates that no PID readings above BG levels were present in the CFI building on April 19th.

Based upon these results, LAG strongly believes that there are no significant health related risks associated with the vapor and dissolved phase contamination present beneath the site. Furthermore, other than the low level detections identified in the ground water, the site does not pose a significant threat to any potential sensitive receptors.

Summary of Findings

Based on the data collected, observations, and the evaluations presented, the following conditions exist at the site:

1. Low concentrations of dissolved phase gasoline contamination are present in ground water beneath the site.
2. The current dissolved phase contaminant plume does slightly extend beyond the existing monitor well configuration (MW-2). However, based on the commercial nature of surrounding properties, the relative low level of dissolved phase contamination on-site, and the lack of surrounding sensitive receptors, we do not believe that additional monitor wells are necessary at this time.
3. The elevated levels of dissolved phase contamination noted during the UST system upgrade remains localized in the vicinity of the dispenser island area.
4. A limited amount of vadose zone contamination continues to remain in soils in the vicinity of the dispenser island area.
5. No contaminant vapor impacts were present in the CFI building structure.

Recommendations

Based on these findings, the following recommendations are made:

1. No additional subsurface investigational work should be performed at this site, other than conducting the semiannual monitoring and sampling of the four existing wells. We believe that this sampling frequency will provide sufficient data to document the status of the low level contamination and help track on-going intrinsic bioremediation and natural attenuation.
2. Prepare a summary report following our review of the data collected during the semiannual site monitoring and sampling events. A cost estimate to implement the semiannual site monitoring and ground water sampling is included as Appendix C.

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Project: Cumberland Farms, Inc. - Station # 4018
Location: Burlington, Vermont

Table 1
VDEC Site # 98-2418
Sheet 1 of 1

Ground Water Elevation/Product Level (feet)

| Data Point | TOC | 05/07/99 | | | | |
|------------|--------|----------|--|--|--|--|
| MW-1 | 100.00 | 96.58 | | | | |
| MW-2 | 97.83 | 92.68 | | | | |
| MW-3 | 97.52 | 93.84 | | | | |
| MW-4 | 97.44 | 94.40 | | | | |
| | | | | | | |
| | | | | | | |

Notes:

- 1 - Elevation datum assumed
- 2 - Reference elevation is elevation of top of PVC well casing
- Light Grey Cell = DRY
- Dark Grey Cell = Inaccessible

Project: Cumberland Farms, Inc. - Station # 4018
Location: Burlington, Vermont

Table 2
VDEC Site # 98-4018
Sheet 1 of 1

Photoionization Results (PID - ppm)

| Data Point | 04/19/99 | 05/07/99 | | | | |
|------------|----------|----------|--|--|--|--|
| MW-1 | | BG | | | | |
| MW-2 | | BG | | | | |
| MW-3 | | BG | | | | |
| MW-4 | | BG | | | | |
| CFI Store | BG | | | | | |
| | | | | | | |
| | | | | | | |

Notes:
BG - Background
SL - Saturated Lamp

Ground Water Quality Results (ppb)

| Data Point | Compound | 05/07/99 | | | |
|------------|--------------|----------|--|--|--|
| MW-1 | Benzene | <2 | | | |
| | Toluene | <2 | | | |
| | Ethylbenzene | <2 | | | |
| | Xylenes | <4 | | | |
| | MTBE | <5 | | | |
| | BTEX | <10 | | | |
| | TPH 8015M | <0.02 | | | |
| | BTEX + MTBE | <15 | | | |
| MW-2 | Benzene | <10 | | | |
| | Toluene | <10 | | | |
| | Ethylbenzene | <10 | | | |
| | Xylenes | <20 | | | |
| | MTBE | 372 | | | |
| | BTEX | <50 | | | |
| | TPH 8015M | 0.567 | | | |
| | BTEX + MTBE | 422 | | | |
| MW-3 | Benzene | 284 | | | |
| | Toluene | 95.5 | | | |
| | Ethylbenzene | <10 | | | |
| | Xylenes | 59.5 | | | |
| | MTBE | <25 | | | |
| | BTEX | 459 | | | |
| | TPH 8015M | 0.839 | | | |
| | BTEX + MTBE | 484 | | | |
| MW-4 | Benzene | <2 | | | |
| | Toluene | <2 | | | |
| | Ethylbenzene | <2 | | | |
| | Xylenes | 26.6 | | | |
| | MTBE | <5 | | | |
| | BTEX | 32.6 | | | |
| | TPH 8015M | 0.065 | | | |
| | BTEX + MTBE | 70.2 | | | |

use 8021 b & report
 naphthalene, TMB

NOTES:

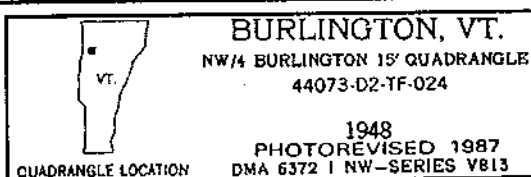
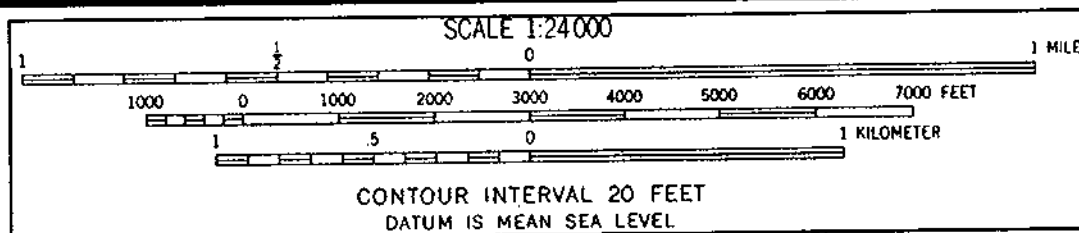
< - Contaminant not detected at specified detection limit

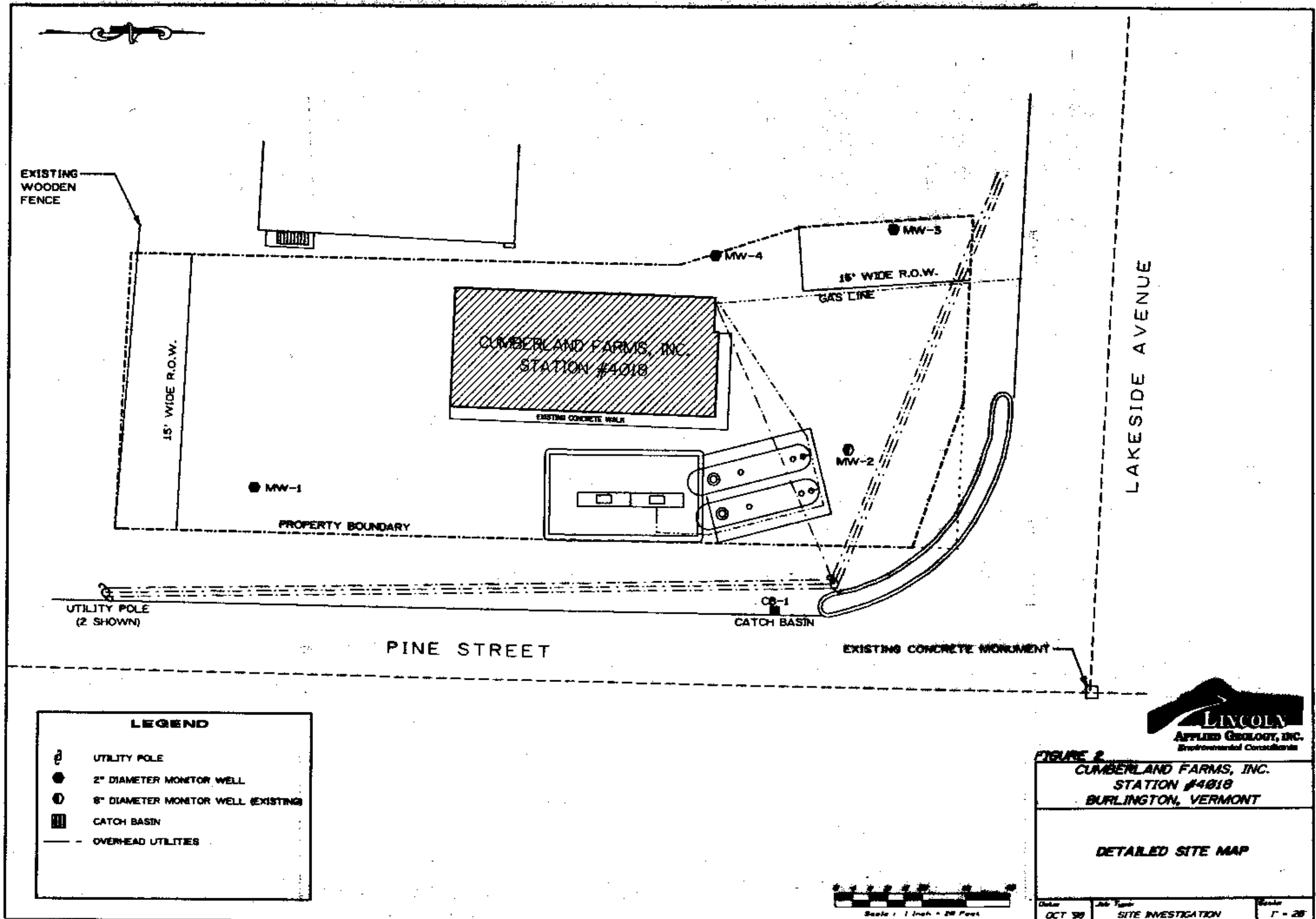
BTEX and MTBE concentrations quantified in parts per billion (ppb), TPH concentrations quantified in parts per million (ppm)

Figure 1

Cumberland Farms, Inc. - Station #4018
SMS Site #98-2418
Burlington, Vermont

GENERAL LOCATION MAP





Appendix A

Detailed Well Logs

WELL LOG

WELL: MW-1
LOCATION: CFI - Station #4018, 661 Pine Street, Burlington, VT
DRILLER: T&K Drilling, Troy, NH
HYDROGEOLOGIST: Rick Vandenburg, Lincoln Applied Geology, Inc.
DATE: April 19, 1999

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

| <u>Depth</u> | <u>Description</u> | <u>PID (ppm)</u> |
|--------------|--|--|
| 0 - 2' | <u>S</u> and, tan to brown, fine to coarse; some gravel, fine; trace silt; sample dry. | 2.7 |
| 2' - 12' | <u>S</u> ilt, dark green; some sand, very fine to fine; (sample wet at 5 feet). | 1.8 @ 5'-7' 1.0 @ 8'-10' 1.2 @ 10'-12' |

Well Construction:

Bottom of Boring: 12'
Bottom of Well: 12'
Well Screen: 6' - (4 - 12') 2.0" sch 40 pvc, 0.020" slot
Solid Riser: 3.5 (0.5 - 4') 2.0" sch. 40 pvc
Sand Pack: 7' (3 - 10') #0 sand
Bentonite Seal: 1' (2 - 3') chips
Backfill: 1' (1 - 2') drill cuttings
Well Box: cemented flush with grade

WELL LOG

WELL: MW-3
LOCATION: CFI - Station #4018, 661 Pine Street, Burlington, VT
DRILLER: T&K Drilling, Troy, NH
HYDROGEOLOGIST: Rick Vandenberg, Lincoln Applied Geology, Inc.
DATE: April 19, 1999

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

| <u>Depth</u> | <u>Description</u> | <u>PID (ppm)</u> |
|--------------|---|---------------------------|
| 0.5' - 2.5' | Dark brown to black debris, wood, coal, etc.; gravel, fine to coarse; some silt; some fine sand (dry) | BG |
| 2.5' - 10' | <u>S</u> ilt, light green; some sand, very fine; trace clay. (sample wet to saturated at 5' - 6") | BG @ 5'-7' BG @ 8'-10' |

Well Construction:

Bottom of Boring: 10'
Bottom of Well: 10'
Well Screen: 6' (4 - 10") 2.0 " sch. 40 pvc, 0.020" slot
Solid Riser: 3.5' (0.5 - 4') 2.0" sch. 40 pvc
Sand Pack: 7' (3 - 10") #0 sand
Bentonite Seal: 1 (2 - 3') chips
Backfill: 1 (1 - 2') drill cuttings
Well Box: cemented flush with grade

WELL LOG

WELL: MW-4
LOCATION: CFI - Station #4018, 661 Pine Street,
DRILLER: T&K Drilling, Troy, NH
HYDROGEOLOGIST: Rick Vandenburg, Lincoln Applied Geology, Inc.
DATE: April 19, 1999

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

| <u>Depth</u> | <u>Description</u> | <u>PID (ppm)</u> |
|--------------|---|---|
| 0 - 0.5' | <u>Gravel</u> , fine to coarse, brown; sand, light green; trace coarse sand; sample dry | 30 |
| 0.5' - 10' | <u>Sand</u> , very fine to fine; light green to light pink; some silt; trace clay. | 40 @ 2' - 4' 12 @ 4' - 6' BG @ 6' - 8' BG @ 8' - 10' |

Well Construction:

Bottom of Boring: 10'
Bottom of Well: 10'
Well Screen: 6' (4 - 10') 2.0" sch. 40 pvc. 0.020" slot
Solid Riser: 3.5' (0.5 - 4.0') 2.0" sch. 40 pvc
Sand Pack: 7' (3 - 10') #0 sand
Bentonite Seal: 1' (2 - 3') chips
Backfill: 1' (1 - 2') drill cuttings
Well Box: cemented flush with grade

Appendix C

Cost Estimate

Cumberland Farms, Inc. (CFI)
661 Pine Street, Burlington, Vermont
VDEC #98-2418
10-Jun-99

Cost Estimate for Semiannual Site Monitoring and Ground Water Sampling

Task A. Ground Water Sampling (One Round)

| | | | | | |
|-------------------------------|-----|-----------|------------------|----|-------------|
| Hydrogeologist/Site Manager - | 0.5 | hr(s) @ | \$75.00 per hour | \$ | 37.50 |
| Field Technician - | 6 | hr(s) @ | \$45.00 per hour | \$ | 270.00 |
| Disposable Bailer (1.5") - | 4 | @ | \$8.89 each | \$ | 35.56 |
| EPA 8021b - | 5 | @ | \$100.00 each | \$ | 500.00 |
| Mileage - | 125 | mile(s) @ | \$0.35 per mile | \$ | 43.75 |
| Sampling Equipment - | 1 | day(s) @ | \$110.00 per day | \$ | 110.00 |
| Subtotal | | | | | \$ 996.81 |
| 2X Yearly | | | | | \$ 1,993.62 |

Task B. Preparation of Summary Report

| | | | | | |
|-----------------------------------|------|---------|------------------|----|-----------|
| Principal/Senior Hydrogeologist - | 0.5 | hr(s) @ | \$90.00 per hour | \$ | 45.00 |
| Hydrogeologist/Site Manager - | 1 | hr(s) @ | \$75.00 per hour | \$ | 75.00 |
| Geologist/Site Manager - | 4 | hr(s) @ | \$55.00 per hour | \$ | 220.00 |
| Computer/CAD Technician - | 2 | hr(s) @ | \$55.00 per hour | \$ | 110.00 |
| Administrative Assistant - | 1.25 | hr(s) @ | \$35.00 per hour | \$ | 43.75 |
| Subtotal | | | | | \$ 493.75 |
| 2X Yearly | | | | | \$ 987.50 |

Yearly Total >>> **\$ 2,981.12**

Costs OK

- add

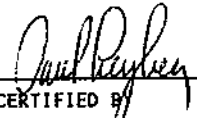
*PID survey of utility corridor along
Pine St. & Lakeview Ave.*

Appendix B

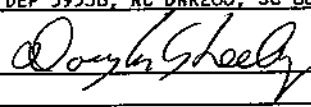
Laboratory Reports for
May 7, 1999

Received: 05/11/99

05/17/99 10:11:05

REPORT LINCOLN APPLIED GEOLOGYTO REVELL DRIVELINCOLN, VT 05443802-453-4384 FAX: 5399ATTEN RICK VANDENBERGPREPARED TOXIKON CORPORATIONBY 15 WIGGINS AVEBEDFORD, MA 01730ATTEN PAUL LEZBERGPHONE (781)275-3330
CERTIFIED BYCONTACT JOHNCLIENT LINCOLN VT SAMPLES 5COMPANY LINCOLN APPLIED GEOLOGYFACILITY REVELL DRIVELINCOLN, VT 05443WORK ID CFI #4018 BURLINGTON, VTTAKEN 5/7/99TRANS TYPE WATERP.O. # CFIINVOICE under separate cover

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE
CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST, NUTRIENTS.
DEMAND, O&G, PHENOLICS, PCBs. CT DHS #PH-0563, NY #10778
FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

VERIFIED BY: 
CERT #MMA064

SAMPLE IDENTIFICATION

01 TRIP BLANK02 MW-103 MW-404 MW-305 MW-2

TEST CODES and NAMES used on this workorder

8021M VOL. ORG. COMP.GRO GASOLINE RANGE ORGANICSENTERED


Received: 05/11/99

Results by Sample

SAMPLE ID TRIP BLANKFRACTION 01A TEST CODE 8021M NAME VOL. ORG. COMP.Date & Time Collected 05/07/99 09:00:00 Category WATER

| | RESULT | LIMIT | | |
|--------------------------|--------|-------|-----------------------------|--------|
| Dichlorodifluoromethane | ND | 2.0 | Ethyl benzene | ND 2.0 |
| Chloromethane | ND | 2.0 | 1,1,1,2-Tetrachloroethane | ND 2.0 |
| Vinyl Chloride | ND | 2.0 | m+p-Xylene | ND 2.0 |
| Bromomethane | ND | 5.0 | o-Xylene | ND 2.0 |
| Chloroethane | ND | 2.0 | Styrene | ND 2.0 |
| Trichlorofluoromethane | ND | 2.0 | Isopropyl benzene | ND 2.0 |
| 1,1-Dichloroethene | ND | 2.0 | Bromoform | ND 2.0 |
| Methylene Chloride | ND | 2.0 | 1,1,2,2-Tetrachloroethane | ND 2.0 |
| trans-1,2-Dichloroethene | ND | 2.0 | 1,2,3-Trichloropropane | ND 2.0 |
| 1,1-Dichloroethane | ND | 2.0 | n-Propyl benzene | ND 2.0 |
| 2,2-Dichloropropane | ND | 2.0 | Bromobenzene | ND 2.0 |
| cis-1,2-Dichloroethene | ND | 2.0 | 1,3,5-Trimethyl benzene | ND 2.0 |
| Chloroform | ND | 2.0 | 2-Chlorotoluene | ND 2.0 |
| Bromochloromethane | ND | 2.0 | 4-Chlorotoluene | ND 2.0 |
| 1,1,1-Trichloroethane | ND | 2.0 | tert-Butyl benzene | ND 2.0 |
| 1,1-Dichloropropene | ND | 2.0 | 1,2,4-Trimethylbenzene | ND 2.0 |
| Carbon Tetrachloride | ND | 2.0 | sec-Butylbenzene | ND 2.0 |
| Benzene | ND | 2.0 | p-Isopropyltoluene | ND 2.0 |
| 1,2-Dichloroethane | ND | 2.0 | 1,3-Dichlorobenzene | ND 2.0 |
| Trichloroethene | ND | 2.0 | 1,4-Dichlorobenzene | ND 2.0 |
| 1,2-Dichloropropane | ND | 2.0 | n-Butylbenzene | ND 2.0 |
| Bromodichloromethane | ND | 2.0 | 1,2-Dichlorobenzene | ND 2.0 |
| Dibromomethane | ND | 5.0 | 1,2-Dibromo-3-Chloropropane | ND 5.0 |
| Toluene | ND | 2.0 | 1,2,4-Trichlorobenzene | ND 2.0 |
| 1,1,2-Trichloroethane | ND | 2.0 | Hexachlorobutadiene | ND 2.0 |
| Tetrachloroethene | ND | 2.0 | Naphthalene | ND 2.0 |
| 1,3-Dichloropropane | ND | 2.0 | 1,2,3-Trichlorobenzene | ND 2.0 |
| Dibromochloromethane | ND | 2.0 | Methyl-t-Butyl Ether | ND 5.0 |
| 1,2-Dibromoethane | ND | 2.0 | | |
| Chlorobenzene | ND | 2.0 | | |

Notes and Definitions for this Report:

DATE RUN 05/14/99
 ANALYST JPM
 INSTRUMENT D
 DILUTION 1
 UNITS ug/L

Handwritten signature/initials

Received: 05/11/99

Results by Sample

SAMPLE ID TRIP BLANKFRACTION 01ATEST CODE GRONAME GASOLINE RANGE ORGANICSDate & Time Collected 05/07/99 09:00:00Category WATER

8015 MODIFIED GRO

| | RESULT | LIMIT |
|------------|--------|-------|
| | * | |
| ALIPHATICS | ND | 0.010 |
| AROMATICS | ND | 0.010 |

Notes and Definitions for this Report:

DATE RUN 05/12/99
ANALYST CAL
INSTRUMENT V5
DIL. FACTOR 1
UNITS = mg/L

ND = not detected at detection limit

Received: 05/11/99

Results by Sample

SAMPLE ID MW-1FRACTION 02ATEST CODE 8021MNAME VOL. ORG. COMP.Date & Time Collected 05/07/99 11:00:00Category WATER

| | RESULT | LIMIT | | RESULT | LIMIT |
|--------------------------|--------|-------|-----------------------------|--------|-------|
| Dichlorodifluoromethane | ND | 2.0 | Ethyl benzene | ND | 2.0 |
| Chloromethane | ND | 2.0 | 1,1,1,2-Tetrachloroethane | ND | 2.0 |
| Vinyl Chloride | ND | 2.0 | m+p-Xylene | ND | 2.0 |
| Bromomethane | ND | 5.0 | o-Xylene | ND | 2.0 |
| Chloroethane | ND | 2.0 | Styrene | ND | 2.0 |
| Trichlorofluoromethane | ND | 2.0 | Isopropyl benzene | ND | 2.0 |
| 1,1-Dichloroethene | ND | 2.0 | Bromoform | ND | 2.0 |
| Methylene Chloride | ND | 2.0 | 1,1,2,2-Tetrachloroethane | ND | 2.0 |
| trans-1,2-Dichloroethene | ND | 2.0 | 1,2,3-Trichloropropane | ND | 2.0 |
| 1,1-Dichloroethane | ND | 2.0 | n-Propyl benzene | ND | 2.0 |
| 2,2-Dichloropropane | ND | 2.0 | Bromobenzene | ND | 2.0 |
| cis-1,2-Dichloroethene | ND | 2.0 | 1,3,5-Trimethyl benzene | ND | 2.0 |
| Chloroform | ND | 2.0 | 2-Chlorotoluene | ND | 2.0 |
| Bromochloromethane | ND | 2.0 | 4-Chlorotoluene | ND | 2.0 |
| 1,1,1-Trichloroethane | ND | 2.0 | tert-Butyl benzene | ND | 2.0 |
| 1,1-Dichloropropene | ND | 2.0 | 1,2,4-Trimethylbenzene | ND | 2.0 |
| Carbon Tetrachloride | ND | 2.0 | sec-Butylbenzene | ND | 2.0 |
| Benzene | ND | 2.0 | p-Isopropyltoluene | ND | 2.0 |
| 1,2-Dichloroethane | ND | 2.0 | 1,3-Dichlorobenzene | ND | 2.0 |
| Trichloroethene | ND | 2.0 | 1,4-Dichlorobenzene | ND | 2.0 |
| 1,2-Dichloropropane | ND | 2.0 | n-Butylbenzene | ND | 2.0 |
| Bromodichloromethane | ND | 2.0 | 1,2-Dichlorobenzene | ND | 2.0 |
| Dibromomethane | ND | 5.0 | 1,2-Dibromo-3-Chloropropane | ND | 5.0 |
| Toluene | ND | 2.0 | 1,2,4-Trichlorobenzene | ND | 2.0 |
| 1,1,2-Trichloroethane | ND | 2.0 | Hexachlorobutadiene | ND | 2.0 |
| Tetrachloroethene | ND | 2.0 | Naphthalene | ND | 2.0 |
| 1,3-Dichloropropane | ND | 2.0 | 1,2,3-Trichlorobenzene | ND | 2.0 |
| Dibromochloromethane | ND | 2.0 | Methyl-t-Butyl Ether | ND | 5.0 |
| 1,2-Dibromoethane | ND | 2.0 | | | |
| Chlorobenzene | ND | 2.0 | | | |

Notes and Definitions for this Report:

DATE RUN 05/14/99ANALYST JPMINSTRUMENT DDILUTION 1UNITS ug/L

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MW-1FRACTION 02ATEST CODE GRONAME GASOLINE RANGE ORGANICSDate & Time Collected 05/07/99 11:00:00Category WATER

8015 MODIFIED GRO

| | RESULT | LIMIT |
|------------|--------|-------|
| | * | |
| ALIPHATICS | ND | 0.010 |
| AROMATICS | ND | 0.010 |

Notes and Definitions for this Report:

DATE RUN 05/12/99
ANALYST CAL
INSTRUMENT V5
DIL. FACTOR 1
UNITS = mg/L

ND = not detected at detection limit

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MW-4FRACTION 03ATEST CODE 8021M

NAME VOL. ORG. COMP.

Date & Time Collected 05/07/99 11:25:00Category WATER

| | RESULT | LIMIT | | RESULT | LIMIT |
|--------------------------|--------|-------|-----------------------------|--------|-------|
| Dichlorodifluoromethane | ND | 2.0 | Ethyl benzene | ND | 2.0 |
| Chloromethane | ND | 2.0 | 1,1,1,2-Tetrachloroethane | ND | 2.0 |
| Vinyl Chloride | ND | 2.0 | m+p-Xylene | 24.6 | 2.0 |
| Bromomethane | ND | 5.0 | o-Xylene | ND | 2.0 |
| Chloroethane | ND | 2.0 | Styrene | ND | 2.0 |
| Trichlorofluoromethane | ND | 2.0 | Isopropyl benzene | ND | 2.0 |
| 1,1-Dichloroethene | ND | 2.0 | Bromoform | ND | 2.0 |
| Methylene Chloride | ND | 2.0 | 1,1,2,2-Tetrachloroethane | ND | 2.0 |
| trans-1,2-Dichloroethene | ND | 2.0 | 1,2,3-Trichloropropane | ND | 2.0 |
| 1,1-Dichloroethane | ND | 2.0 | n-Propyl benzene | ND | 2.0 |
| 2,2-Dichloropropane | ND | 2.0 | Bromobenzene | ND | 2.0 |
| cis-1,2-Dichloroethene | ND | 2.0 | 1,3,5-Trimethyl benzene | ND | 2.0 |
| Chloroform | ND | 2.0 | 2-Chlorotoluene | ND | 2.0 |
| Bromochloromethane | ND | 2.0 | 4-Chlorotoluene | ND | 2.0 |
| 1,1,1-Trichloroethane | ND | 2.0 | tert-Butyl benzene | ND | 2.0 |
| 1,1-Dichloropropene | ND | 2.0 | 1,2,4-Trimethylbenzene | 12.5 | 2.0 |
| Carbon Tetrachloride | ND | 2.0 | sec-Butylbenzene | ND | 2.0 |
| Benzene | ND | 2.0 | p-Isopropyltoluene | ND | 2.0 |
| 1,2-Dichloroethane | ND | 2.0 | 1,3-Dichlorobenzene | ND | 2.0 |
| Trichloroethene | ND | 2.0 | 1,4-Dichlorobenzene | ND | 2.0 |
| 1,2-Dichloropropane | ND | 2.0 | n-Butylbenzene | ND | 2.0 |
| Bromodichloromethane | ND | 2.0 | 1,2-Dichlorobenzene | ND | 2.0 |
| Dibromomethane | ND | 5.0 | 1,2-Dibromo-3-Chloropropane | ND | 5.0 |
| Toluene | ND | 2.0 | 1,2,4-Trichlorobenzene | ND | 2.0 |
| 1,1,2-Trichloroethane | ND | 2.0 | Hexachlorobutadiene | ND | 2.0 |
| Tetrachloroethene | ND | 2.0 | Naphthalene | ND | 2.0 |
| 1,3-Dichloropropane | ND | 2.0 | 1,2,3-Trichlorobenzene | ND | 2.0 |
| Dibromochloromethane | ND | 2.0 | Methyl-t-Butyl Ether | ND | 5.0 |
| 1,2-Dibromoethane | ND | 2.0 | | | |
| Chlorobenzene | ND | 2.0 | | | |

Notes and Definitions for this Report:

DATE RUN 05/14/99ANALYST JPMINSTRUMENT DDILUTION 1UNITS ug/L

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MJ-4FRACTION 03ATEST CODE GRONAME GASOLINE RANGE ORGANICSDate & Time Collected 05/07/99 11:25:00Category WATER

8015 MODIFIED GRO

| | RESULT | LIMIT |
|------------|--------|-------|
| | * | |
| ALIPHATICS | ND | 0.010 |
| AROMATICS | 0.055 | 0.010 |

Notes and Definitions for this Report:

DATE RUN 05/12/99
ANALYST CAL
INSTRUMENT V5
DIL. FACTOR 1
UNITS = mg/L

ND = not detected at detection limit

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MW-3FRACTION 04ATEST CODE 8021MNAME VOL. ORG. COMP.Date & Time Collected 05/07/99 11:45:00Category WATER

| | RESULT | LIMIT | | RESULT | LIMIT |
|--------------------------|--------|-------|-----------------------------|--------|-------|
| Dichlorodifluoromethane | ND | 10 | Ethyl benzene | ND | 10 |
| Chloromethane | ND | 10 | 1,1,1,2-Tetrachloroethane | ND | 10 |
| Vinyl Chloride | ND | 10 | m+p-Xylene | 49.5 | 10 |
| Bromomethane | ND | 25 | o-Xylene | ND | 10 |
| Chloroethane | ND | 10 | Styrene | ND | 10 |
| Trichlorofluoromethane | ND | 10 | Isopropyl benzene | ND | 10 |
| 1,1-Dichloroethene | ND | 10 | Bromoform | ND | 10 |
| Methylene Chloride | ND | 10 | 1,1,2,2-Tetrachloroethane | ND | 10 |
| trans-1,2-Dichloroethene | ND | 10 | 1,2,3-Trichloropropane | ND | 10 |
| 1,1-Dichloroethane | ND | 10 | n-Propyl benzene | ND | 10 |
| 2,2-Dichloropropane | ND | 10 | Bromobenzene | ND | 10 |
| cis-1,2-Dichloroethene | ND | 10 | 1,3,5-Trimethyl benzene | ND | 10 |
| Chloroform | ND | 10 | 2-Chlorotoluene | ND | 10 |
| Bromochloromethane | ND | 10 | 4-Chlorotoluene | ND | 10 |
| 1,1,1-Trichloroethane | ND | 10 | tert-Butyl benzene | ND | 10 |
| 1,1-Dichloropropene | ND | 10 | 1,2,4-Trimethylbenzene | ND | 10 |
| Carbon Tetrachloride | ND | 10 | sec-Butylbenzene | ND | 10 |
| Benzene | 294 | 10 | p-Isopropyltoluene | ND | 10 |
| 1,2-Dichloroethane | ND | 10 | 1,3-Dichlorobenzene | ND | 10 |
| Trichloroethene | ND | 10 | 1,4-Dichlorobenzene | ND | 10 |
| 1,2-Dichloropropane | ND | 10 | n-Butylbenzene | ND | 10 |
| Bromodichloromethane | ND | 10 | 1,2-Dichlorobenzene | ND | 10 |
| Dibromomethane | ND | 25 | 1,2-Dibromo-3-Chloropropane | ND | 25 |
| Toluene | 95.5 | 10 | 1,2,4-Trichlorobenzene | ND | 10 |
| 1,1,2-Trichloroethane | ND | 10 | Hexachlorobutadiene | ND | 10 |
| Tetrachloroethene | ND | 10 | Naphthalene | 817 | 10 |
| 1,3-Dichloropropane | ND | 10 | 1,2,3-Trichlorobenzene | ND | 10 |
| Dibromochloromethane | ND | 10 | Methyl-t-Butyl Ether | ND | 25 |
| 1,2-Dibromoethane | ND | 10 | | | |
| Chlorobenzene | ND | 10 | | | |

Notes and Definitions for this Report:

DATE RUN 05/14/99ANALYST JPMINSTRUMENT DDILUTION 5UNITS ug/L

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MW-3 FRACTION 04A TEST CODE GRO NAME GASOLINE RANGE ORGANICS
Date & Time Collected 05/07/99 11:45:00 Category WATER

8015 MODIFIED GRO

| | RESULT | LIMIT |
|------------|--------|-------|
| | * | |
| ALIPHATICS | 0.572 | 0.020 |
| AROMATICS | 0.267 | 0.020 |

Notes and Definitions for this Report:

DATE RUN 05/13/99
ANALYST NLC
INSTRUMENT V5
DIL. FACTOR 2
UNITS = mg/L

ND = not detected at detection limit

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MU-2FRACTION 05A TEST CODE 8021M NAME VOL. ORG. COMP.Date & Time Collected 05/07/99 12:00:00Category WATER

| | RESULT | LIMIT | | RESULT | LIMIT |
|--------------------------|--------|-------|-----------------------------|--------|-------|
| Dichlorodifluoromethane | ND | 10 | Ethyl benzene | ND | 10 |
| Chloromethane | ND | 10 | 1,1,1,2-Tetrachloroethane | ND | 10 |
| Vinyl Chloride | ND | 10 | m+p-Xylene | ND | 10 |
| Bromomethane | ND | 25 | o-Xylene | ND | 10 |
| Chloroethane | ND | 10 | Styrene | ND | 10 |
| Trichlorofluoromethane | ND | 10 | Isopropyl benzene | ND | 10 |
| 1,1-Dichloroethene | ND | 10 | Bromoform | ND | 10 |
| Methylene Chloride | ND | 10 | 1,1,2,2-Tetrachloroethane | ND | 10 |
| trans-1,2-Dichloroethene | ND | 10 | 1,2,3-Trichloropropane | ND | 10 |
| 1,1-Dichloroethane | ND | 10 | n-Propyl benzene | ND | 10 |
| 2,2-Dichloropropane | ND | 10 | Bromobenzene | ND | 10 |
| cis-1,2-Dichloroethene | ND | 10 | 1,3,5-Trimethyl benzene | ND | 10 |
| Chloroform | ND | 10 | 2-Chlorotoluene | ND | 10 |
| Bromochloromethane | ND | 10 | 4-Chlorotoluene | ND | 10 |
| 1,1,1-Trichloroethane | ND | 10 | tert-Butyl benzene | ND | 10 |
| 4,1-Dichloropropene | ND | 10 | 1,2,4-Trimethylbenzene | ND | 10 |
| Carbon Tetrachloride | ND | 10 | sec-Butylbenzene | ND | 10 |
| Benzene | ND | 10 | p-Isopropyltoluene | ND | 10 |
| 1,2-Dichloroethane | ND | 10 | 1,3-Dichlorobenzene | ND | 10 |
| Trichloroethene | ND | 10 | 1,4-Dichlorobenzene | ND | 10 |
| 1,2-Dichloropropane | ND | 10 | n-Butylbenzene | ND | 10 |
| Bromodichloromethane | ND | 10 | 1,2-Dichlorobenzene | ND | 10 |
| Dibromomethane | ND | 25 | 1,2-Dibromo-3-Chloropropane | ND | 25 |
| Toluene | ND | 10 | 1,2,4-Trichlorobenzene | ND | 10 |
| 1,1,2-Trichloroethane | ND | 10 | Hexachlorobutadiene | ND | 10 |
| Tetrachloroethene | ND | 10 | Naphthalene | ND | 10 |
| 1,3-Dichloropropane | ND | 10 | 1,2,3-Trichlorobenzene | ND | 10 |
| Dibromochloromethane | ND | 10 | Methyl-t-Butyl Ether | 372 | 25 |
| 1,2-Dibromoethane | ND | 10 | | | |
| Chlorobenzene | ND | 10 | | | |

Notes and Definitions for this Report:

DATE RUN 05/13/99ANALYST JPMINSTRUMENT DDILUTION 5UNITS ug/L

MAY 21 1999

ENTERED

Received: 05/11/99

Results by Sample

SAMPLE ID MW-2 FRACTION 05A TEST CODE GRO NAME GASOLINE RANGE ORGANICS
Date & Time Collected 05/07/99 12:00:00 Category WATER

8015 MODIFIED GRO

| | RESULT | LIMIT |
|------------|--------|-------|
| | * | |
| ALIPHATICS | 0.426 | 0.10 |
| AROMATICS | 0.141 | 0.10 |

Notes and Definitions for this Report:

DATE RUN 05/12/99
ANALYST CAL
INSTRUMENT V5
DIL. FACTOR 10
UNITS = mg/L

ND = not detected at detection limit

ENTERED

Received: 05/11/99

Test Methodology

TEST CODE 8021M NAME VOL. ORG. COMP.

EPA METHOD 8021B

Reference: Test Methods for Evaluating Solid Waste Physical/Chemical Methods.
3rd Edition, SW846. Volatile Organic Compounds in Water by Purge
and Trap Capillary Column Gas Chromatography With Photoionization
and Electrolytic Conductivity Detectors in Series.
FINAL UPDATE 111, 1996.

TEST CODE GRO NAME GASOLINE RANGE ORGANICS

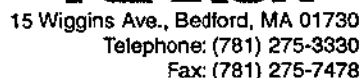
METHOD: EPA METHOD 8015 Modified; Gasoline Range Organics

Nonhalogenated Volatile Organics. Test Methods for Evaluating Solid
Waste, Physical/Chemical Methods 3rd Edition, Final Update I.

Quantitation for BTEX/MTBE is performed by analysis on a PID detector.
Miscellaneous aromatics eluting between o-xylene and 1,2,4-trimethyl-
benzene are quantitated on the PID detector using the response factor
of o-xylene. Miscellaneous aliphatics eluting between 3-methylpentane
and isooctane are quantitated on the FID detector using the response
factor of n-hexane.

This method meets the specifications of Maine DEP Method 3.1.1.2.6

01/11/99



WORK ORDER #: 99-05-206

DUE DATE : 05-18-94

COMPANY: Lincoln Applied Geology
ADDRESS: 163 Rexell Rd
Lincoln, UT 05443
PHONE #: (802) 453-4384 FAX #: (802) 453-5379
P.O. #: _____
PROJECT MANAGER: Rick Vandenberg
PROJECT ID/LOCATION: CFI Burlington

| SAMPLE TYPE | CONTAINER TYPE |
|---------------------|----------------|
| 1. WASTEWATER | P - PLASTIC |
| 2. SOIL | G - GLASS |
| 3. SLUDGE | V - VOA |
| 4. OIL | |
| 5. DRINKING WATER | |
| 6. WATER (GW/MW/SW) | |
| 7. OTHER (SPECIFY | |

ANALYSES

PLASTIC
GLASS
VOA

EPA 8021 B + MBE
TPH by EPA 8015 PM

[illegible]

SAMPLED BY:

DATE: 5 - 7 - 99

QUOTATION #:

RELINQUISHED BY:

DATE: 5 - 10 - 99

RECEIVED BY:

DATE: - -

RELINQUISHED BY:

DATE: 05-11-90

RECEIVED FOR LAB BY:

DATE: 15 - 11 - 69

METHOD OF SHIPMENT

COOLER TEMPERATURE

☐ RUSH BUSINESS DAY TURN AROUND☒ ROUTINE

Sample disposal information

Are there any other known or suspected contaminants in these samples other than those listed above?